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SNOW SURVEYS AND IRRIGATION WATER FORECASTS
for the
COLORADO RIVER DRAINAGE BASIN

May 1, 1940

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Issued by the
United States Department of Agriculture
Soil Conservation Service
Division of Irrigation
In Cooperation with
The Colorado Agricultural Experiment Station
Colorado State College
Fort Collins, Colorado

May 6, 1940

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

COLORADO RIVER BASIN

May 1, 1940

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service, U. S. Department of Agriculture, in cooperation with State departments, other federal bureaus and local organizations. The snow measurements are made principally by field personnel of the following Federal Government organizations: Forest Service, National Park Service, Geological Survey, Bureau of Reclamation, Indian Service; and the Utah Agricultural Experiment Station. This work is otherwise conducted cooperatively with the State Engineers of Utah and Colorado, State Planning Board of Wyoming, U. S. Geological Survey, Utah and Colorado Agricultural Experiment Stations, and various municipalities, irrigation associations, power companies, and others. Precipitation records are supplied by the U. S. Weather Bureau.

SUMMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS
BY WATERSHEDS

WATERSHEDS	Snow Depth				Water Content			Number Courses Reporting			Snow Density			1940 Water Content in percent of previous years		
	Five Year Avg.*			1939	1940	Five Year Avg.*	1939	1940	Five Year Avg.*	Percent	Percent	1939	1940	Five Year Avg.*	Percent	
	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	In.	
COLORADO RIVER																
Green River	16.4	5.6	8.6	6.6	2.3	3.1	6	40	41	36	47	135	135	73	47	
Colorado River*	28.5	25.9	24.1	10.7	10.3	7.8	19	38	40	32	73	76	76	100	73	
Yampa River	37.8	30.2	34.5	16.5	13.9	16.5	5	44	46	48	48	119	119	95	95	
White River	25.2	20.0	25.8	10.6	9.8	10.1	2	42	42	49	39	103	103	76	76	
Gunnison River	17.7	11.3	14.6	7.0	4.4	5.3	12	40	39	36	36	121	121	76	76	
Dolores River	11.6	8.9	10.9	4.3	3.7	4.0	3	37	42	37	37	108	108	48	48	
San Juan River	26.0	21.3	13.7	12.0	9.8	5.7	4	46	46	42	42	58	58	58	58	

*Some for shorter periods

**Above Grand Junction, Colo.

TOLSTOY'S "ANNA KARENINA" 101

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PRECIPITATION DATA
(Based on incomplete returns)

WATERSHED	STATE	Precipitation October 1 to April 30		Departure from Normal		Precipitation April		Departure from Normal	
		Inches	Inches	Inches	Inches	Inches	Inches	Inches	Inches
Colorado	Colorado	9.70		-0.61		2.15		+0.60	
Green	Wyoming	5.99		+1.13		1.42		+0.64	
San Juan	New Mexico	4.83		-1.04		0.55		-0.25	
Gila	Arizona	6.53		-1.98		1.42		+0.59	
Gila	New Mexico	6.25		+0.36		0.55		+0.09	

OUTLOOK

Precipitation over the watershed of the Colorado River and its tributaries in Colorado, Wyoming, New Mexico and Arizona during the month of April was above normal except in the San Juan Basin in New Mexico, but there is in general a deficiency in the accumulated precipitation since October 1, 1939 except on the Green River watershed.

Snow cover in the mountain areas in Colorado on the watershed of the Colorado River and its tributaries is greater than it was last year at this time except in the San Juan Basin. On the watershed of the Colorado above Grand Junction the average water content of the snow on the courses was 7.8 inches on May 1, and 10.3 inches on this date a year ago. The five-year average for May 1 is 10.7 inches. For the same periods the water content of the snow on the Green River courses was 3.1 inches, 2.3 inches and 6.6 inches; on the Yampa River courses was 16.5 inches, 13.9 inches and 16.5 inches; on the White River courses, the depths were 10.1 inches, 9.8 inches and 10.6 inches; on the Gunnison River courses they were 5.3 inches, 4.4 inches and 7.0 inches; and on the Dolores River courses they were 4.0 inches, 3.7 inches and 4.3 inches. On these same dates the depths on the San Juan River courses were 5.7 inches, 9.8 inches and 12.0 inches. No observations were made on the Gila River courses in Arizona and New Mexico on May 1 because the snow in this area disappears before this date.

The soil moisture condition is from fair to good except in the Casa Grande valley where it is very poor. Heavy pumping during 1939 in the Salt River Valley lowered the water table slightly. A more pronounced lowering of the water table occurred in the Casa Grande area amounting to approximately 4 feet. Further lowering in both areas is anticipated owing to the heavy draft which will occur this summer because of the shortage of water. Storage in the Salt River Valley Water Users Association reservoirs was 167,000 acre feet on May 1; last year it was 392,000 acre feet on this date. Coolidge Reservoir had 34,000 acre feet in storage on May 1, 1940 and 21,000 acre feet a year ago. In Taylor Park Reservoir there were 45,000 acre feet in storage on May 1, 1940 and 78,000 on May 1, 1939.

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The outlook for irrigation water in the Colorado River basin for the coming season improved somewhat during April. The water content of the snow on the courses on May 1 indicates that the runoff from the area, except the San Juan River Basin, will be about the same as last year and only slightly less than normal. Runoff from the San Juan Basin will probably be less than one half of what it was last year. If normal summer rains occur, there will be sufficient water for irrigation in the upper Colorado River Basin, but from present indications there will be a serious shortage of water in the San Juan and Gila river basins.

COLORADO RIVER WATERSHED
Summary of Federal and State Cooperative Snow Surveys
Issued May 6, 1940, at Fort Collins, Colo.

Main Drainage and Snow Course No.	Local Drainage	State	Location	Descrip- tion	Elev. National Forest	Course Measurements						
						May 1 Av. Snow Depth Avg.	1939 In.	1940 In.	1939 In.	1940 In.	1939 In.	
GUNNISON RIVER												
18 Crested Butte	Slate River	Colo.	3mi.N.Crested B.	22-13S-86W	9000 Gunnison	9•1	1•1	1•3	3•5	0•3	0•4	
38 Sunshine Mt.	Henson Cr.	"	10mi.W.Lake City	35-44N-6W	10200 "	20•1	11•4	27•7	7•8	3•3	7•8	
42 Marshall Creek	Marshall Cr.	"	Marshall Pass	24-48N-6E	10800 Cochetopa	22•4	19•3	18•2	8•6	8•2	6•2	
43 Poncha Creek*	"	"	"	19-48N-7E	10500 "	14•6	16•7	13•4	5•5	6•8	4•6	
46 Park Cone	Taylor River	Colo.	Taylor Park Res.	19-14S-82W	9700 Gunnison	8•1	1•2	0•5	2•9	0•4	0•1	
53 Alexander Lake	Kiser Creek	"	10mi.N.Cedaredge	2-12S-95W	10000 Grand Mesa	57•0	39•0	57•1	22•6	16•2	19•8	
55 Snowshoe Mesa	Snowshoe Cr.	"	16mi.NE.Paonia	14-13S-89W	7500 Gunnison	0•0	0•0	0•0	0•0	0•0	0•0	
58 Ironton Park	Red Mtn.Cr.	"	5mi.S.Qurray	29-43N-7W	9800 Uncompahgre	14•5	1•4	19•4	5•7	0•5	8•3	
85 Trickle Divide	Surface Cr.	"	13mi.N.Cedaredge	22-11S-94W	10000 Grand Mesa	--	--	63•9	--	--	23•4	
86 Trickle	"	"	11mi."	34-11S-94W	9700 "	--	--	51•9	--	--	18•8	
87 Park Reservoir	Porphry Cr.	"	"	34-11S-94W	9500 "	--	--	58•2	--	--	21•3	
DOLORES RIVER												
23 Rico	Dolores R.	Colo.	2mi.S.Rico	11-39N-11W	8700 Montezuma	0•0	0•0	0•0	0•0	0•0	0•0	
24 Telluride	San Miguel R.	"	Telluride	6-42N-8W	8600 "	0•0	0•0	0•0	0•0	0•0	0•0	
25 Lizard Head	Dolores R.	"	10mi.N.Rico	24-41N-10W	10300 Average for Drainage	34•1	26•7	32•8	12•8	11•0	12•1	
SAN JUAN RIVER						11•6	8•9	10•9	4•3	3•7	4•0	
26 Wolf Creek Pass*	Wolf Creek	Colo.	4-37N-2E	10000 Rio Grande	48•5	40•4	23•2	22•8	18•3	9•8		
29 Upper San Juan	"	"	10-37N-1E	10000 San Juan	55•5	44•8	31•8	25•4	20•9	13•1		
30 Silverton Sub.S.	Animas R.	"	10-41N-7W	9400 "	0•0	0•0	0•0	0•0	0•0	0•0		
31 Cascade	Cascade Cr.	"	12-39N-9W	8850 "	0•0	0•0	0•0	0•0	0•0	0•0		
32 Roof Butte	Chin Lee Cr.	Ariz.	36-4N109-1W	8500 Navajo Res.	--	--	--	--	--	--		
13 Washington Pass	Tunitza Wash.	N.Mex.	26-1N108-8W	8600 "	26•0	21•3	13•7	12•0	9•8	5•7		
GREEN RIVER												
7 East Rim Divide	Fish Creek	Wyo.	13mi.SE.Bondurant	32-37N-111W	7950 Teton	--	--	--	--	--	--	
23 Dutch Joe Cr.	Dutch Joe Cr.	"	12mi.N.Elkhorn	33-31N-104W	8700 Wyoming	7•0	0•0	0•0	2•6	0•0	0•0	
24 Mulligan Park	Surveyor Cr.	"	Fremont Lake	17-35N-108W	8900 "	14•5	0•0	8•3	5•3	1•4	2•4	
25 Kendall R.S.	Green River	"	23-38N-110W	7900 "	8•4	3•4	1•9	3•4	1•4	0•8		
26 Loomis Park	Beaver Cr.	"	14-37N-111W	8500 "	26•0	12•1	18•1	10•8	5•0	7•4		
27 Snyder Basin R.S.	Big Piney	"	15-29N-114W	8040 "	13•4	4•8	3•4	5•6	2•1	1•0		
28 Piney-LaBarge	Big Piney	"	19-29N-114W	8820 "	29•0	13•1	20•2	11•7	5•0	6•9		
			Average for Drainage		16•4	5•6	8•6	6•6	2•3	3•1		

*On adjacent Drainage

/Comparable average

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COLORADO RIVER WATERSHED

Summary of Federal and State Cooperative Snow Surveys
Issued May 6, 1940, at Fort Collins, Colo.

Main Drainage and Snow Course	Local Drainage	Location	State Locality	Description	Elev.						National Forest						May 1 Snow Course Measurements					
					Av.		Snow Depth		Av. Water Content		Av.		Snow Depth		Av. Water Content		Av.		Snow Depth		Av. Water Content	
					In.	In.	In.	In.	In.	In.	Avg.	In.	In.	In.	In.	Avg.	In.	In.	Avg.	In.	In.	Avg.
COLORADO RIVER (Above Grand Junction)																						
7 Park View*	Willow Cr.	Colo.	7 mi. SE. Rand	24-5N-78W	9200	Routt	18.0	17.7	20.4	6.9	8.0	5.8										
10 Lynx Pass	Rock Cr.	"	7 mi. NE. Toponas	27-2N-83W	9100	"	21.5	19.1	23.3	8.7	8.5	8.0										
12 Phantom Valley	Colorado R.	"	11 mi. N. Grand L.	7-5N-75W	9300	Ry. Mtn. N.P.	21.2	14.5	10.6	5.4	5.5	3.5										
16 Berthoud Pass	Fraser R.	"	4 mi. S. West Port.	35-2S-75W	9700	Arapaho	39.4	39.6	37.4	14.5	16.3	12.4										
19 Tennessee Pass*	Eagle River	"	Tennessee Pass	21-8S-80W	10200	Cochetopa	13.0	22.3	6.7	4.3	7.9	1.3										
33 Ind. Pass Tunnel	Lincoln Gulch	"	W. Port. Tunnel	30-11S-82W	10200	Holy Cross	37.5	34.1	33.3	14.1	12.8	11.3										
34 N. Lost Trail Cr.	Crystal R.	"	3 mi. E. Marble	20-11S-87W	9200	"	21.6	23.2	21.7	8.9	8.8	9.1										
37 M. Fork Camp Gr.	Williams Fk.	"	13 mi. N. Dillon	16-3 S-77W	9000	Arapaho	10.1	5.1	3.4	3.3	1.8	1.3										
44 Fiddler Gulch	Eagle River	"	2 mi. E. Mitchell	1-8S-80W	11000	Holy Cross	38.4	39.0	41.4	12.9	14.6	12.7										
45 Nast	Frying Pan R.	"	23 mi. SE. Basalt	1-9S-83W	8700	"	3.1	1.3	4.7	0.9	0.5	0.4										
54 Maroon Lake	Maroon Creek	"	8 mi. SW. Aspen	7-11S-85W	9300	Grand Mesa	35.7	19.7	42.8	13.4	7.8	16.6										
56 Mesa Lakes	Mesa Creek	"	15 mi. E. Palisade	35-11S-96W	10000	Ry. Mtn. N.P.	63.6	60.0	"	26.2	24.3	---										
59 Lulu	Lulu Creek	"	14 mi. N. Grand L.	25-6N-76W	10200	Arapaho	36.0	33.3	33.3	14.6	15.9	10.6										
62 Willow Creek P.	Willow Cr.	"	Willow Cr. Pass	1-4N-78W	9500	Ry. Mtn. N.P.	24.3	21.8	17.7	8.8	9.0	5.7										
64 N. Inlet Grand L.	N. Inlet Cr.	"	4 mi. NE. Grand L.	26-4N-75W	9000	"	65.8	60.4	61.8	25.2	23.6	20.5										
65 Lake Irene	Beaver Creek	"	1 mi. SW. Milner F.	8-5N-75W	10600	Arapaho	36.8	26.7	28.5	14.4	11.8	10.0										
66 Thunderbolt Peak	Buchanan Cr.	"	5 mi. E. Monarch L.	22-2N-74W	9500	"	19.9	10.4	15.5	6.0	3.4	1.9										
69 Arrow	S. Ranch Cr.	"	Arrow	34-1S-75W	9900	"	14.4	13.3	0.0	4.7	4.7	0.0										
70 Lapland	St. Louis Cr.	"	7 mi. SW. Fraser	16-2S-76W	9300	"	46.7	55.0	54.2	16.4+	20.0	15.6										
79 Fremont Pass#2	Blue River	"	Fremont Pass	2-8S-79W	11400	Average for Drainage	28.5	25.9	24.1	10.7	10.3	7.8										
YAMPA RIVER																						
6 Dry Lake	Soda Creek	Colo.	4 mi. NE. Steam. Spgs	26-7N-84W	8200	Routt	33.9	31.1	37.5	17.2	13.5	19.4										
8 Columbine Lodge*	Harrison Cr.	"	Ebt. Ears Pass	21-5N-82W	9300	"	43.9	44.2	40.9	20.0	20.7	18.2										
9 Elk River	Independence Cr.	"	Columbine	6-10N-85W	8700	"	30.9	16.9	26.3	12.4	7.1	12.5										
10 Lynx Pass*	Morrison Cr.	"	7 mi. NE. Toponas	27-2N-83W	9100	"	21.5	19.1	23.3	8.7	8.5	8.0										
10 Rambler R.S.	Little Snake R.	Wyo.	13 mi. SW. Encampmt	25-14N-86W	8600	Medicine Bow	48.6	39.8	44.3	24.1	19.9	24.6										
WHITE RIVER						Average for Drainage	37.8	30.2	34.5	16.5	13.9	16.5										
35 Burro Mountain	N. Elk Creek	Colo.	15-2S-91W	9000	White River	31.4	24.0	35.0	13.1	10.7	13.2											
36 Rio Blanco	White River	"	28-1N-88W	8500	"	18.9	16.0	20.0	8.2	9.0	7.0											

*On adjacent drainage •Readings on original course.

